Original Research Article

The Effects of a Goal-Setting Intervention on Frequency of Participation in Organized Exercise Programmes for Women

ABSTRACT

Aims: The purpose of this study was to examine the effect of a goal-setting intervention on frequency of participation in women attending exercise programmes in a fitness club.
Study design: Pragmatic Field Intervention.
Place and Duration of Study: The intervention was implemented in a private fitness club and the duration of the study was 12 weeks.
Methodology: The final sample consisted of 36 women (M_{age} = 38.13, *SD*= 7.40), randomly assigned into intervention (*n*= 17) and control (*n*= 19) groups. The intervention lasted eight weeks, during which all participants had unlimited access to all activities of their choice, with the intervention group receiving in parallel a goal-setting intervention. Frequency of attendance was recorded from four weeks prior to the onset of the intervention (baseline) until 4 weeks following its completion (follow-up). The Basic Psychological Needs in Exercise Scale was used to assess satisfaction of basic needs before and after the intervention.
Results: The results showed that (a) for the intervention group, frequency of participation increased from baseline (2.15±0.90) to mid-intervention (2.66±0.70) period and dropped back to baseline levels at follow-up (1.77+1.30); (b) for the control group, frequency of participation decreased from baseline (2.07±0.99) to intervention (1.37±0.94) period and remained stable at follow-up (1.47±1.42). Regarding the basic needs, it was shown that satisfaction for the need for competence was increased for the experimental group, and satisfaction for the need for autonomy was decreased for the control group.
Conclusion: The findings showed that goal-setting has positive effects on participation for the duration of the intervention; however, these effects were not sustained after its conclusion, suggesting (a) consultants with expertise on goal-setting may help improving adherence in organized programmes, and (b) that such interventions should place emphasis on developing individuals' skills on goal setting.

Keywords: exercise psychology, exercise adherence, fitness club, exercise professionals.

1. INTRODUCTION

Regular exercise and balanced diet are the most important factors for a healthy lifestyle. The World Health Organization (WHO) recommends that adults should engage in aerobic physical activity for 300 minutes of moderate intensity or 150 minutes of vigorous intensity per week, or an equivalent combination of moderate and vigorous physical activity [1]. In addition, muscle-strengthening physical activity is recommended at least twice per week. Even though, nowadays, people are well-informed about the prevention of health issues through regular exercise, only a small percentage adhere to these recommendations. Recent surveys indicate that the active percentage of exercisers in rather low. A study in the U.S. showed that the percentage of adults, meeting the Physical Activity Guidelines for aerobic physical activity was 53.3%, whereas the percentage of adults meeting the guidelines for both aerobic and muscle-strengthening activity was just 23.2% [2]. These results imply that there is yet a long way towards a healthy lifestyle, wherein physical activity is a way of living rather than a 'compulsory habit'.

One of the most important theories examining the exercisers' motivation and behavioral adherence is the self-determination theory [3,4]. This theory explains that people are driven to engage in activities through the satisfaction of three basic psychological needs; competence, autonomy, and relatedness. Autonomy expresses the need to experience sense of choice over initiation and regulation of behavior, competence expresses the need to produce outcomes and understand the contingencies leading to these outcomes, and relatedness expresses the need to

experience satisfactory relationships with others. These psychological needs are innate and necessary for human growth and the degree to which these are satisfied determines to a large extent their motivation and involvement in various activities, including systematic exercise participation [5].

The process of establishing a level of performance proficiency which should be reached within a prescribed time period is known as goal-setting [6]. Goal-setting is a technique that directs attention, mobilizes effort, prolongs exercise persistence, fosters the development of new learning strategies, and affects confidence level satisfaction [6,7]. Goal-setting is a technique that can facilitate the satisfaction of basic psychological needs. Participating in the goal-setting process with a trainer/instructor and deciding one's own personal goals can satisfy people's need for autonomy; furthermore, working together with the instructor will, in parallel, increase the sense of relatedness. Finally, achieving these goals will eventually enhance the perceptions of competence.

When physical activity programmes satisfy exercisers' needs, and consequent goals, intrinsic motivation will be increased [8]. In order to make goals facilitate intrinsic motivation, and thus increase exercise adherence, the characteristics of the goals should be examined. There are 3 types of goals; outcome goals, which focus on the result or outcome of an action/activity, performance goals that help the person focus on improving his/her own performance, and process goals, which focus on the procedure that someone can possibly follow to reach the goal. The research so far concludes that process goals are more effective in exercise settings, because they help exercisers focus their attention to the behavior itself, in contrast to outcome of that behavior, and thus it is more possible to maintain long-term adherence [9,10].

Several studies, including healthy samples and samples suffering or recovering from a disease or injury, have studied the effect of goal-setting in exercisers' levels of attendance and adherence, supporting the beneficial effects of the method [11-13]. Nevertheless, there are also studies that have provided rather ambiguous results [14-17], and studies that have not supported the effectiveness of goal-setting for exercise adherence [18,19].

Even though the physical and mental benefits of regular exercise have been well-established in the literature [20,37], it has been found that among those initiating organized exercise programmes over 50% of will soon drop [21]. Studies pointed that potential reasons raising the exercise dropout rates are failure, lack of improvement, or changes in motivation [22,23]. As already identified above, goal-setting is a beneficial technique within exercise settings, as it can enhance motivation and regulate behavior [24]. Thus, exploiting the potential of goal-setting could assist exercisers to participate more regularly in organized programmes and maintain long-term adherence, which would eventually enhance their quality of life and well-being [5].

Towards this direction the present study aimed at exploring the effectiveness of a goal-setting intervention on frequency of participation among women participating in organized exercise programmes. To strengthen the potential impact of the goal setting programme the intervention targeted the satisfaction of the three basic psychological needs through weekly consultation sessions. In these sessions participants would (a) have the chance to discuss and set goals for themselves to develop a sense of autonomy; (b) would evaluate goal attainment with the consultant to increase competence; and (c) would receive support and reinforcement, which in addition to (a) and (b) would increase relatedness. To evaluate the retention of the potential effects the frequency of participation was recorded from 4 weeks prior to the onset of the intervention to 4 weeks after its completion. With regard to the major research question that involved participants' attendance to the fitness club programs, it was hypothesized that attendance of the intervention group would increase during the intervention, whereas that of the control group would decrease. With regard to the secondary question, that involved the satisfaction of the three psychological needs, it was hypothesized that the satisfaction of needs for the intervention group will increase, whereas that of the control group will not change. Finally, with regard to the social validation of the goal-setting intervention it we expected that participants of the intervention group would use systematically goal setting and that they would considered it useful towards their attendance.

2. MATERIAL AND METHODS

2.1 Participants

Participants were 64 females, aged 26-50 years old already registered in a private fitness club. Participants had been members of the club for at least one month before the onset of the intervention, and were eligible for unlimited open access to all the facilities and the organized fitness programmes the club was offering for six months.

2.2 Procedures

The study was first approved by the ethics committee of the institution (ref: 1379) and the fitness club management. All participants were informed about the procedures of the study, were assured that they could withdraw from the programme at any time, and subsequently signed informed consent. Participants were randomly assigned into experimental (*n*= 31) and control (*n*= 33) groups. All participants were informed that the frequency of their participation will be recorded for the following 8 weeks. Participants of the experimental group were also informed that during this period they would be asked to attend six face-to-face one-hour meetings with the consultant. A goal-setting intervention was implemented to the experimental group. The duration of the intervention was 8 weeks. Before the onset and upon completion of the intervention, participants of both groups completed measures assessing the satisfaction of basic needs. Participants' frequency of participation in exercise programmes was recorded and retrieved from the administration of the fitness club for one month before the onset of the intervention, during, and for one month following the completion of the intervention.

2.2.1 Goal-setting intervention

In the first session, a discussion about the benefits of regular exercise, and the usefulness of goal-setting took place. Then, each participant was given 3 goal-setting cards. The first card included four columns in which participants were asked to report (a) general (outcome) goals, (b) how could they possibly achieve them, (c) which could be the potential barriers, and (d) how they could possibly overcome these barriers [25]. The purpose of this table was to help the participants think about their goals and the reasons why they exercise, in order to have a clear view and come more focused and prepared on their trainings. Moreover, the table provided participants the opportunity to find the ways that each goal could be achieved, and thus create an exercising plan. Finally, it was supposed to think of strategies that could help them overcome obstacles in achieving their goals [26,27]. The second card, was a weekly table [25], that required to write down the everyday goals, the process to be followed to achieve the goals, as well as an evaluation of the process, and personal comments as a diary that could help them reflect. The purpose of the second table, was to help the participants keep a record of the goals they achieved and document why and how this happen. This is important because it facilitates the monitoring of progress and helps the participant continue, or try alternative ways to achieve goals, which were not achieved. The third card had two parts; the first, was an hourly-weekly-schedule table, and the second a 'commitment contract'. The purpose of the schedule was to help the participants set attendance and alternative attendance goals, in case they missed one or more of the originally planned sessions. Furthermore, it was meant to help participants complaining about lack of time to organize their free time more efficiently, by providing alternative days or hours for training, and thus increase adherence [25. The purpose of the 'commitment contract', was to increase the participants' commitment towards important others (counselor, family or friends), but most importantly towards themselves. After, the cards were provided and explained, participants were introduced and practiced on how to setting SMART goals.

In the following sessions, the consultant was discussing with the participants the appropriateness of the set goals and the completed cards in relation to the SMART guidelines, and the degree of goal achievement. In addition, the session included discussion regarding goals that were not met and the reasons for that, the use of strategies that could be employed towards goal achievement, personal evaluation about the week's progress, and the interaction with their trainer.

2.3 Measures

2.3.1 Basic need satisfaction

The Basic Psychological Needs in Exercise Scale (BPNES) was used to evaluate the satisfaction of the psychological needs for autonomy, competence and relatedness [28]. The questionnaire consists of 12 items, divided into three sub-scales with four subjects per sub-scale: autonomy (4 questions, e.g., "the way I practice is totally in agreement with my choices and interests"), competence (4 questions, e.g., "I think I do well in this exercise program") and relatedness (4 questions, e.g., "My relationship with my companion is too friendly"). Responses were given on a 5-point Likert scale (1 = completely disagree, 5 = totally agree)

2.3.2 Social validation

In the final assessment, participants of the intervention group only were asked to report on the use and usefulness of goal-setting. In particular they asked to reply two questions on a 10-point Likert scale (1-10) assessing (a) how regularly

they set goals for the frequency, duration and intensity of exercise, and (b) how helpful they found the goal-setting intervention for maintaining or increasing their frequency of participation.

2.4 Data analysis

Independent samples t-test was calculated to examine differences on attendance and one-way ANOVA was calculated to examine differences on satisfaction of psychological needs at baseline, prior to the onset of the intervention.

Repeated measures ANOVA was calculated to test for differences in frequency of participation between the experimental and the control groups across four time points; baseline (four Weeks prior to the onset of the intervention – $W_{minus4-0}$), first half of the interventions (Week one to Week four – W_{1-4}), completion of the intervention (Week five to Week eight – W_{5-8}), and follow-up, four weeks after the completion of the intervention (Week nine to Week twelve – W_{9-12}).

Repeated measures MANOVA was calculated to test for differences in satisfaction of basic psychological needs between the experimental and the control groups from baseline to the completion of the intervention.

3. RESULTS

Twenty-eight participants did not complete the experimental procedures, thus could not be included in the data analysis due to lack of data. The sample that was finally analyzed consisted of 36 participants (M_{age} = 38.13, *SD*= 7.40), including 17 from the intervention group and 19 from the control group.

3.1 Baseline Comparisons

Independent samples *t*-test showed no significant differences in frequency of participation before the onset of the intervention between participants of the two groups, $t(34)= 0.26$, $p= .80$.

One-way MANOVA testing for differences in basic need satisfaction at baseline between the two groups showed a non-significant multivariate effect, $F(3, 32)= 1.25$, $p= .31$. Examination of the univariate effects showed that there was no difference in any of the three dimensions of needs; for competence, $F(1, 36)=1.29$, $p= .26$, for relatedness, $F(1, 36)=3.69$, $p= .06$, for autonomy, $F(1, 36)= 2.73$, $p= .11$.

3.2 Hypothesis Testing

3.2.1 Frequency of participation

Two-way ANOVA with one repeated factor (4 time-points) and one independent factor (group: control, experimental) showed a significant group by time interaction, $F(3, 32)= 7.05$, $p< .01$. Examination of the pairwise comparisons per time showed that: (a) for the experimental group, frequency increased from $W_{minus4-0}$ to W_{1-4} ($p= .02$), remained stable from W_{1-4} to W_{5-8} ($p= .40$), and decreased from W_{5-8} to W_{9-12} ($p= .001$); (b) for the control group, frequency decreased from $W_{minus4-0}$ to W_{1-4} ($p= .001$), remained stable from W_{1-4} to W_{5-8} ($p= .35$), and from W_{5-8} to W_{9-12} ($p= .67$). Examination of the pairwise comparisons per group showed that there were significant differences between the two groups in W_{1-4} ($p< .001$) and W_{5-8} ($p= .02$), with the experimental group scoring higher than the control, but not in W_{9-12} ($p= .51$). The mean scores for frequency of participation for the two groups across time are displayed in Figure 1.

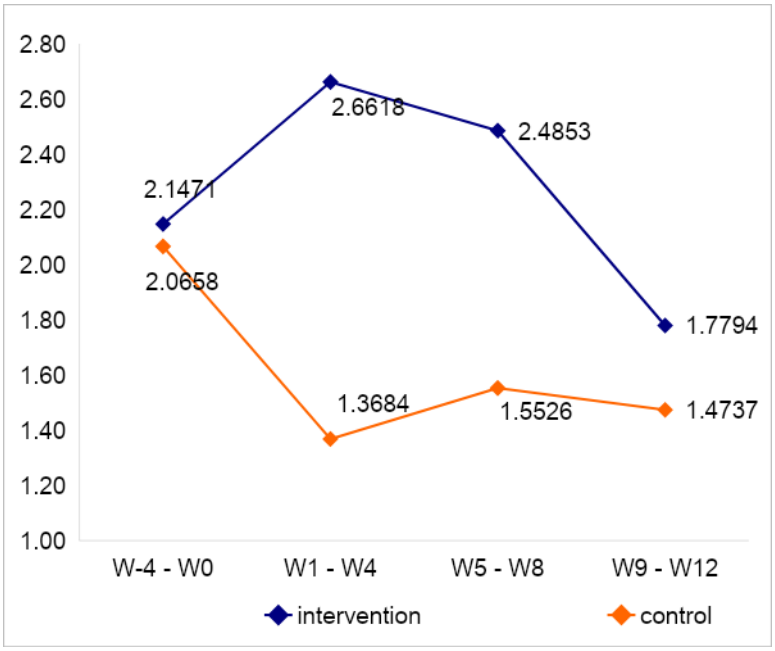

Fig. 1. Changes in frequency of participation across time for the two groups

3.2.2 Basic needs satisfaction

Two-way MANOVA with one repeated factor (pre-, post-intervention) and one independent factor (group: control, experimental) examining differences in satisfaction of basic psychological needs as a function of time showed a non-significant group by time multivariate interaction, $F(3, 32)= 2.05$, $p= .13$; however, examination of the pairwise comparisons as a function of time showed significant within group difference for the needs for competence and autonomy. In particular, for competence, it was revealed that scores for the experimental group increased ($p= .05$), whereas those of the control group remained unchanged ($p= .38$). For autonomy, it was revealed that scores of the control group decreased ($p= .01$), whereas those of the experimental group did not change significantly ($p= .56$). Examination of the pairwise comparisons as a function of group showed no significant differences between the two groups for the three needs at the post-intervention measure. Nevertheless, a one-way MANOVA exploring differences in score-changes for the three needs from pre- to post-intervention between the two groups revealed significant differences for autonomy, F(1, 36) = 4.47, p= .04, and competence, F(1, 36) = 4.32, p= .05, with the experimental group showing greater motivational benefits. The mean scores for the satisfaction of basic needs for the two groups before and after the intervention are displayed in Table 1.

Table 1. Descriptive statistics for basic needs satisfaction per group

	Experimental				Control			
	Pre		Post		Pre		Post	
	M	SD	M	SD	M	SD	M	SD
Competence	3.57	0.64	3.82	0.64	3.80	0.56	3.69	0.62
Relatedness	4.13	0.64	4.22	0.72	4.47	0.40	4.22	0.62
Autonomy	4.13	0.49	4.20	0.70	4.39	0.45	4.10	0.60

3.2.3 Social validation

Upon completion of the intervention, participants of the intervention group reported consistent use of goal setting throughout the programme ($M= 7.82$, $SD= 1.59$) and acknowledged that goal setting helped them maintain or increase the frequency of their participation in exercise programmes ($M= 8.35$, $SD= 1.73$).

4. DISCUSSION

The purpose of this study was to examine the effect of an eight-week goal-setting intervention on exercise participation. It was also examined whether this program could affect the satisfaction of the three basic psychological needs; autonomy, competence and relatedness. Based on the self-determination theory of [3,4], it was hypothesized that the intervention including face-to-face consultation for goal-setting would increase the participants' adherence, and this increase would probably have occurred by the increase of the levels of satisfaction of the basic psychological skills [8].

The results showed that during the intervention the experimental group, in contrast to the control group, significantly increased the frequency of their visits to the fitness club compared to the four weeks prior to the intervention. Whereas the increase for the intervention group can be attributed to the goal-setting consultation, the decrease of the control group can be attributed to typical fitness club attendance attrition but also to the Easter holiday period which fall within the intervention. This makes the effect for the intervention group even more impressive, as typically over the Easter holiday visits of gym clients typically drop, but also because the gyms close for a period of 4 days.

Upon completion of the intervention and for the following four weeks, frequency of participation for the intervention group decreased significantly. This was in contrast to our expectations, as we originally hypothesized that the consultation would have a longer-term effect to participants due to its educational character with regard to the use and effectiveness of goal-setting. In a follow-up anecdotal inquiry with several participants the decreased was attribute to personal reasons, some of which correspond to usual barriers, such as time constraints, individuals report for the lack of physical activity [29-31]. Thus, despite the effectiveness during its implementation, the intervention failed to achieve a sustained effect on frequency of participation. A possible reason for that may be the prior experience of participants and the relatively high and stable participation rates even from the beginning of the research. Simply put, an already long-term exerciser may not be able to increase considerably for long periods of time. This conclusion has been also drawn from other researchers

working with long-term active exercisers or with exercisers with previous experience [19]. In addition to that, it may be that a 6-session intervention was not long enough for participants to master and fully exploit the goal-setting strategy. This is something that was noticed from the consultant during the process as until session three most of the participants were still trying to learn the technique, and spent more time on that, rather than the practical implication. Similar studies have also failed to achieve long-term effect of goal-setting in exercise participation, and maybe the similarity of short-time intervention could be the reason [17,18].

An important and relatively novel aspect of this intervention was the examination of the effects of goal-setting on basic needs satisfaction. The literature has established that satisfaction of basic need can help initiate and increase adherence in exercise [32,33]. In addition, it has been also established that goal-setting can increase the satisfaction levels of basic needs. Especially, the need of competence can be satisfied due to achieved process goals, making the exerciser feel

more competent, and thus physically active [9,10,13]. The results showed that at completion of the intervention satisfaction for the need for competence had increased significantly. Goal setting has proven effective in developing self-efficacy and a more general sense of competence in beginner exercisers [8,17]. Over and above, the intervention seemed to work equally for non-beginners. In particular, during the consultation several participants reported that were experiencing lack of progress. This was partly attributed to their long-term adherence to the programme they were attending, and the lack of motivation or strategies to further improve. Thus, the goal-setting consultation succeeded in developing a sense of competence even for experienced more active clients.

For the needs of autonomy and relatedness the increase was not significant for the experimental group, whereas decreases in autonomy were reported for the control group. Even though our hypothesis was that the consultation would increase autonomy due to the development of independent goal-setting skills, this was not evidenced at the completion of the intervention. This finding also complies with the lack of follow-up effect on frequency of participation. Similarly, according to the hypotheses we expected that relatedness would increase due to the contact with the consultant but this was also not confirmed. These findings could be possibly attributed to the structure of other exercise programmes participants attended and their interaction with several trainers in the gym. Furthermore, with regard to autonomy, participants verbally reported that in their gym experience they were mostly used to be fully guided by the expert trainers, as authorities on the matter [34-36], thus having no space and subsequently lack of skills for independent practice.

4.1 Limitations

Certain limitations of this research should be considered. Most importantly, the relatively high experimental mortality that resulted in a rather limited sample. Despite that originally a satisfactory number of clients offered to participate, many of them failed to present themselves when the programme begun, or dropped out thereafter. As these participants were not traced information regarding the reason for dropping out were not obtained. Future studies employing larger samples and more effective monitoring of participants will help shedding more light on the effectiveness of goal-setting consultation interventions. Another aspect that should be considered was the interruption of access due to the festive period of Easter, during which many people also take holidays. This may have negatively affected participation, thus having a negative impact on the effectiveness of the intervention. Nevertheless, as this intervention took place in a pragmatic setting, such preventing factors should be considered normal; thus, the observed increase in participation of the experimental group should be further commended.

5. Conclusion

Despite the above limitations the study provides valuable evidence with regard to the effect of goal-setting consultation on exercise participation and need satisfaction in exercisers with established records of exercise participation in organized programmes. In particular, the findings showed that frequency of exercise increased during the duration of the intervention and this was accompanied by an increase for the satisfaction of the need for competence, that may actually explain the increase in frequency; nevertheless, the frequency dropped back to pre-intervention levels upon completion of the intervention and this may be attributed to the lack of increase for the satisfaction of the need for autonomy. All in all, future research his warranted to enhance our understanding of strategies to increase exercise participation in organized programmes; nonetheless, the consistent presence of an exercise psychology expert in fitness clubs appears as a promising endeavor towards this direction.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Consent

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

Disclaimer

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